

APPENDIX B-1

(Marked Up Version of Substitute Specification)



SUBSTITUTE SPECIFICATION

POCKET GUN REST

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Technical Field

[0001] The present invention relates to versatile gun rests, and more particularly to gun rests that are compact and readily adjustable, and methods of using the same.

Background of the Invention

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[0002] The use of a gun rest to improve a shooter's accuracy is well known. Traditionally, gun rests have been heavy, cumbersome devices which yield great accuracy but are difficult for a sportsman to carry into the field. More recently, there has been the introduction of devices that provide the necessary stabilization without some of the bulk of the traditional devices.

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[0003] United States Patent No. 5,332,185 describes a gun rest which consists of a central compartment and two side compartments, wherein the central compartment is configured to provide a U-shaped cradle for the forearm of a firearm. The two side compartments hang over the edge of a supporting surface to provide stability to the gun rest. Further, the compartments of this rest are intended to be filled with a substance such as sand. For this reason, this gun rest includes a sandbag. While the gun rest described in this patent is less cumbersome than traditional gun rests, it is still difficult for a sportsman to carry it into the field due to the weight associated with the sand.

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[0004] United States Patent No. Des. 324,530 describes a combined gun and camera rest which consists of two attached panels, wherein the panels can be opened to form a V-shape. The distance between unattached ends of the panels can be maintained by a strap-like device. The attached ends of the panels contain a U-shaped recess for accepting the forearm of a firearm. This gun rest may be manufactured to be very lightweight and compact in size, but it is not readily height adjustable. Additionally, this gun rest is limited in its maximum height by the length of the attached panels. This gun rest is impractical to the sportsman in the field because it would necessitate the sportsman to attain a prone firing position, which is often a disadvantageous position in the field.

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[0005] United States Patent No. 6,158,159 describes a gun sighting rest which consists of a support body containing a U-shaped recess in its top surface for receiving the forearm of a firearm. Elevation control is obtained by placing the front edge of the support body into a recess on an elevation wedge. This gun rest may be manufactured from lightweight material but suffers from the disadvantages of being of two-piece construction as well as not being readily height adjustable. While this rest would provide useful service

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to a shooter utilizing a shooting bench or table it is impractical for the sportsman to use in the field.

[0006] United States Patent No. 5,845,427 describes a portable gun rest which consists of a base attached to an elevating arm, wherein the elevating arm is attached by a hinge at one end to the base, with the other end of the elevating arm being freely adjustable. As the free end of the elevating arm is raised, its elevation may be maintained by the use of a rod between the base and elevating arm. While this gun rest is quickly and easily adjustable, its maximum elevation is limited by the length of the elevating arm. Unless the sportsman wishes to carry a gun rest equal to his body height, this gun rest is not practical for use in the field, as it would restrict the sportsman to either a prone or kneeling position.

[0007] United States Patent No. 4,913,391 describes a gun rest which is adjustable for elevation that consists of a U-shaped cradle affixed to the top of a shaft. The gun rest further comprises a bracket which may be attached to a fixed surface such as the railing of a tree stand, fence, porch or deck. While this gun rest is easily adjustable for elevation such that a sportsman may maintain a standing posture, it is impractical for use in the field because its bracket needs to be affixed to a surface.

[0008] United States Patent No. 4,575,964 describes a portable gun rest designed to have one end placed on a sportsman's thigh while the sportsman is in a kneeling position. The other end of the gun rest consists of a U-shaped cradle, which holds the forearm of a firearm. Between the two ends, the gun rest consists of two telescoping tubes. This gun rest is height adjustable and could theoretically be tall enough to allow the sportsman to place one end on the ground and maintain a standing posture. Elevation adjustment is obtained by extending or collapsing the telescoping tubes, and the desired adjustment is maintained by securing means, such as a pin, which slips through a hole in the inner tube or through matching holes in each tube. Elevation adjustment is not quick or convenient and thus does not allow the sportsman to quickly adapt to changing hunting situations.

[0009] United States Patent No. 4,393,614 describes a gun rest consisting of a telescoping tubular shaft with a U-shaped cradle attached to the top of the shaft. The height of the tubular shaft is adjustable by extending or collapsing the telescoping tubes and maintaining the height by securing means. This gun rest's U-shaped cradle is designed to accept the barrel of a firearm. This gun rest is adjustable in height such that a sportsman may use whatever posture the terrain and comfort dictate, but this gun rest suffers from not being quickly adjustable due to the telescoping nature of the shaft. Additionally, this gun rest would not be useful to a sportsman as the positioning of the U-shaped cradle on the barrel of the firearm would be detrimental to accuracy as the weight of the firearm would cause the barrel to bend and thus change a fired bullet's point of impact.

[0010] Thus there exists a need for a compact, portable, lightweight gun rest that is quickly and simply adjusted over a wide range of heights such that a sportsman can take advantage of the most comfortable and convenient posture as dictated by the terrain or hunting situation.

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Summary of the Invention

[0011] The present invention relates to gun rests which are compact, lightweight and readily height adjustable. This ease of adjusting the height of the gun rest allows a sportsman to quickly adapt the rest to the body posture dictated by the terrain and situation.

10 A gun rest in accordance with the present invention comprises a plate. A first end section of the plate has an opening which is sized such that a shaft may be received therein. A second end section of the plate is bent or formed at an angle with respect to the plane formed by the first end section of the plate. The gun rest is used by inserting a shaft through the opening in the plate with the second end section directed upward. Any variety of shafts may be
15 employed such as, for example, walking/wading sticks, staffs, canes and tree limbs. Once the shaft is received in the opening, the sportsman may place the forearm of a firearm on the gun rest in the bend formed between the planes of the first end section and the second end section. The sportsman may then adjust the gun rest to a desired height. The weight of the firearm will serve to tightly hold the gun rest in position on the shaft, thereby removing the
20 weight of the firearm from the sportsman as well as providing a steady base to improve accuracy.

[0012] Preferably, the opening in the first end section of the gun rest is generally circular on one end and tapers to a point on the other end, thereby improving the gripping ability of the gun rest on a shaft. According to embodiments of the present invention, teeth
25 may be formed into the periphery of the opening. Teeth may be formed in the periphery of both the generally circular and tapered ends of the opening. Alternatively, or additionally, portions of the opening may be covered by flexible gripping aids, which also serve to silence the gun rests of the present invention.

[0013] The gun rest may be constructed from any material displaying the necessary
30 rigidity to support the weight of a firearm. Materials such as, for example, steel, aluminum, other metallic materials, composite materials, polymeric materials, wood or glass may be used.

[0014] Additionally, a retaining device may be attached to the gun rest so that it may be connected to the shaft if so desired. Such retaining means may take the form of a
35 small hole formed near the first end section of the gun rest through which a string or wire may be threaded. Additionally, a loop may be formed on the first end section of the gun

rest through which a string or wire may be threaded. These strings or wires may then be used to attach the gun rest to the shaft so that it is readily available when the sportsman needs to use the gun rest

- [0015] The gun rests may be fitted into the receptacle of a mounting bracket, which
5 may either be used on a flat surface or attached to a surface by means of pressure plates and a tightener, to further stabilize the gun rest and thereby increase the accuracy of the sportsman.

Brief Description of the Drawings

- 10 [0016] Figure 1 is a side view of an embodiment of the gun rest of the present invention.
[0017] Figure 2 is a top view of the gun rest of Fig. 1.
[0018] Figure 3 is a top view of another embodiment of the present invention, which incorporates teeth.
15 [0019] Figure 4 is a top view of a different embodiment of the present invention, which incorporates flexible gripping aids.
[0020] Figure 5 is a side view of a further embodiment of the present invention, which incorporates a retaining device.
[0021] Figure 6 is a top view of an embodiment of the present invention, which
20 incorporates a retaining device.
[0022] Figure 7 is a side view of a gun rest in accordance with the present invention mounted on a shaft.
[0023] Figure 8 is a side view of a user using an embodiment of the present invention on a shaft.
25 [0024] Figure 9 is a side view of an embodiment of the present invention on a shaft, wherein the shaft has been fixed to a surface.
[0025] Figure 10 is a top view of yet another embodiment of the present invention.
[0026] Figure 11 is a top view of a still further embodiment of the present invention.

Detailed Description of the Invention

- 30 [0027] Figure 1 illustrates gun rest 10 according to one embodiment of the present invention. Gun rest 10 comprises a plate 11 having a first end section 12, a second end section 13 and an intermediate section 14. Plate 11 between second end section 13 and intermediate section 14 is bent such that an exterior angle 15 from about 30 to about 90
35 degrees is formed between the second end section 13 and the extension of the first end section 12 in its plane, and an interior angle 35 from about 90 to about 150 degrees is

formed between the first end section 12 and the second end section 13. Angles 15 and 35 are designed such that the forearm of a firearm will easily and securely rest on gun rest 10.

[0028] Figure 2 illustrates gun rest 10. Gun rest 10 comprises a plate 11 having a first end section 12, a second end section 13 and an intermediate section 14. Plate 11

5 between the second end section 13 and intermediate section 14 is bent such that an exterior angle from about 30 to about 90 degrees is formed between the second end section 13 and the extension of the first end section 12 in its plane, and an interior angle from about 90 to about 150 degrees is formed between the first end section 12 and the second end section 13. Opening 16 is formed in first end section 12. Opening 16 is configured in shape and size
10 such that a shaft may be inserted into opening 16. Opening 16 is illustrated as being generally tear-dropped in shape with the point of the tear-drop 17 being aligned towards first end section 12 and the round end 18 of the tear-drop being aligned towards second end section 13.

[0029] It is understood that opening 16 may be of any shape and size desired such
15 that a shaft may be inserted into opening 16. Additionally, it is understood that plate 11 may be constructed of any material displaying the necessary strength and rigidity to support the weight of a firearm such as, for example, steel, aluminum, other metallic materials, composite materials, polymeric materials, wood or glass.

[0030] Figure 3 illustrates gun rest 100, another embodiment of the present
20 invention. Gun rest 100 comprises a plate 111 having a first end section 112, a second end section 113 and an intermediate section 114. Plate 111 between second end section 113 and intermediate section 114 is bent such that an exterior angle from about 30 to about 90 degrees is formed between the second end section 113 and the extension of the first end section 112 in its plane, and an interior angle from about 90 to about 150 degrees is formed
25 between the first end section 112 and the second end section 113. Opening 116 is formed in first end section 112. Opening 116 is configured in shape and size such that a shaft may be inserted into opening 116. Opening 116 is illustrated as being generally tear-dropped in shape with the point of the tear-drop 117 being aligned towards first end section 112 and the round end 118 of the tear-drop being aligned towards second end section 113. Teeth 119
30 are located around the perimeter of opening 116 such that teeth 119 will aid in gripping a shaft inserted into opening 116.

[0031] It is understood that opening 116 may be of any shape and size desired such that a shaft may inserted into opening 116. Additionally, it is understood that teeth 119 may be arranged around the perimeter of opening 116 in any configuration and size desired to
35 improve the gripping of a shaft inserted into opening 116. Finally, it is understood that plate 111 may be constructed of any material displaying the necessary strength and rigidity

to support the weight of a firearm such as, for example, steel, aluminum, other metallic materials, composite materials, polymeric materials, wood or glass.

[0032] Figure 4 illustrates gun rest 200, a further embodiment of the present invention. Gun rest 200 comprises a plate 211 having a first end section 212, a second end section 213 and an intermediate section 214. Plate 211 between second end section 213 and intermediate section 214 is bent such that an exterior angle from about 30 to about 90 degrees is formed between the second end section 213 and the extension of the first end section 212 in its plane, and an interior angle from about 90 to about 150 degrees is formed between the first end section 212 and the second end section 213. Opening 216 is formed in first end section 212. Opening 216 is configured in shape and size such that a shaft may be inserted into opening 216. Opening 216 is illustrated as being generally tear-dropped in shape with the point of the tear-drop 217 being aligned towards first end section 212 and the round end 218 of the tear-drop being aligned towards second end section 213. Flexible gripping aids 220, which contain slits 221, are located such that a portion of opening 216 is covered. Flexible gripping aids 220 will aid in gripping a shaft inserted into opening 216 as well as serving as a silencer between gun rest 200 and a shaft inserted into opening 216.

[0033] It is understood that opening 216 may be of any shape and size desired such that a shaft may be inserted into opening 216. Additionally, it is understood that flexible gripping aids 220, which contain slits 221, may be arranged around the perimeter of opening 216 in any configuration and size desired to improve the gripping of a shaft inserted into opening 216. Further, flexible gripping aids 220 may be constructed of any suitable material. Preferred embodiments of the present invention exist when flexible gripping aids 220 are constructed of a plastic material. Finally, it is understood that plate 211 may be constructed of any material displaying the necessary strength and rigidity to support the weight of a firearm such as, for example, steel, aluminum, other metallic materials, composite materials, polymeric materials, wood or glass.

[0034] Figure 5 illustrates gun rest 300, another embodiment of the present invention. Gun rest 300 comprises a plate 311 having a first end section 312, a second end section 313 and an intermediate section 314. Plate 311 between second end section 313 and intermediate section 314 is bent such that an exterior angle 315 from about 30 to about 90 degrees is formed between the second end section 313 and the extension of the first end section 312 in its plane, and an interior angle 335 from about 90 to about 150 degrees is formed between the first end section 312 and the second end section 313. Angles 315 and 335 are designed such that the forearm of a firearm will easily and securely rest on gun rest 300. Retaining device 322A, which is designed to secure gun rest 300 to a shaft, is attached to second end section 313. While retaining device 322A is illustrated as a loop through

which a string or wire may be threaded, it is understood that retaining device 322A may take the form of any such device known in the art.

[0035] Figure 6 illustrates gun rest 300. Gun rest 300 comprises a plate 311 having a first end section 312, a second end section 313 and an intermediate section 314. Plate 311
5 between second end section 313 and intermediate section 314 is bent such that an exterior angle from about 30 to about 90 degrees is formed between the second end section 313 and the extension of the first end section 312 in its plane, and an interior angle from about 90 to about 150 degrees is formed between the first end section 312 and the second end section 313. Opening 316 is formed in first end section 312. Opening 316 is configured in shape
10 and size such that a shaft may be inserted into opening 316. Opening 316 is illustrated as being generally tear-dropped in shape with the point of the tear-drop 317 being aligned towards first end section 312 and the round end 318 of the tear-drop being aligned towards second end section 313. Retaining device 322B is positioned in second end section 313.

[0036] It is understood that opening 316 may be of any shape and size desired such
15 that a shaft may be inserted into opening 316. Further, while retaining device 322B is illustrated as an opening in plate 311 through which a string or wire may be threaded, it is understood that retaining device 322B may take the form of any such device known in the art. Finally, it is understood that plate 311 may be constructed of any material displaying the necessary strength and rigidity to support the weight of a firearm such as, for example,
20 steel, aluminum, other metallic materials, composite materials, polymeric materials, wood or glass.

[0037] Figure 7 illustrates gun rest 10 slidably attached to a shaft 98. Gun rest 10 comprises a plate 11 having a first end section 12, a second end section 13 and an intermediate section 14. Plate 11 between second end section 13 and intermediate section
25 14 is bent such that an exterior angle 15 from about 30 to about 90 degrees is formed between the second end section 13 and the extension of the first end section 12 in its plane, and an interior angle 35 from about 90 to about 150 degrees is formed between the first end section 12 and the second end section 13. Angles 15 and 35 are designed such that the forearm of a firearm will easily and securely rest on gun rest 10.

[0038] Figure 8 illustrates gun rest 10 slidably attached to a shaft 98 while supporting the weight of firearm 99 and thus improving the accuracy of a sportsman using gun rest 10. Second end section 13 and intermediate section 14 of gun rest 10 are visible in this figure. While the sportsman is illustrated using gun rest 10 in a kneeling position, it is understood that the rapid and easy adjustment of gun rest 10 on shaft 98 would allow the
35 sportsman to assume the most comfortable and convenient posture dictated by the terrain or hunting situation.

[0039] Figure 9 illustrates gun rest 10 slidably attached to a shaft 98 wherein shaft 98 has been fixed to a surface 33. Gun rest 10 comprises a plate 11 having a first end section 12, a second end section 13 and an intermediate section 14. Plate 11 between second end section 13 and intermediate section 14 is bent such that an exterior angle 15
5 from about 30 to about 90 degrees is formed between the second end section 13 and the extension of the first end section 12 in its plane, and an interior angle 35 from about 90 to about 150 degrees is formed between the first end section 12 and the second end section 13. Angles 15 and 35 are designed such that the forearm of a firearm will easily and securely rest on gun rest 10.

10 [0040] Shaft 98 is attached to surface 33 by the use of mounting bracket 23. Mounting bracket 23 comprises two pressure plates 24a and 24b, tightener 25 and receptacle 26. Pressure plates 24a and 24b are slipped over the end of surface 33 such as, for example, a tree stand or porch floor, and are tightened against the surface by use of tightener 25. Receptacle 26 is permanently attached to pressure plate 24a and forms a
15 cylindrical cavity perpendicular to pressure plate 24a such that shaft 98 can be inserted into the cylindrical cavity. Tightener 25 is illustrated as a bolt and nut, but it is understood that tightener 25 may take the form of any device which can fasten to a surface.

[0041] Alternatively, pressure plate 24a may be disconnected from pressure plate 24b and tightener 25 and used as a flat surface for receptacle 26, which may be used upon
20 any surface not capable of fitting between pressure plates 24a and 24b such as, for example, the ground or the bed of a pick-up truck.

[0042] Figure 10 illustrates a top view of gun rest 400, an additional embodiment of the present invention. Gun rest 400 comprises a plate 411 having a first end section 412, a second end section 413 and an intermediate section 414. Plate 411 between second end
25 section 413 and intermediate section 414 is bent such that an exterior angle from about 30 to about 90 degrees is formed between the second end section 413 and the extension of the first end section 412 in its plane, and an interior angle from about 90 to about 150 degrees is formed between the first end section 412 and the second end section 413. Opening 416 is formed in first end section 412. Opening 416 is configured in shape and size such that a
30 shaft may be inserted into opening 416. Opening 416 is illustrated as being generally tear-dropped in shape with the point of the tear-drop 417 being aligned towards first end section 412 and the round end 418 of the tear-drop being aligned towards second end section 413. Additionally, opening 416 is designed such that one side of the tear-drop extends to the edge of plate 411 such that a gun rest 400 may be slipped around a shaft as well as having a
35 shaft inserted. Teeth 419 are located around the perimeter of opening 416 such that teeth 419 will aid in gripping a shaft inserted into opening 416. Retaining device 422 is

positioned in second end section 413. While retaining device 422 is illustrated as an opening through which a string or wire may be threaded, it is understood that retaining device 422 may be any retaining device.

[0043] It is understood that opening 416 may be of any shape and size desired such that a shaft may inserted into opening 416. Additionally, it is understood that teeth 419 may be arranged around the perimeter of opening 416 in any configuration and size desired to improve the gripping of a shaft inserted into opening 416. Finally, it is understood that plate 411 may be constructed of any material displaying the necessary strength and rigidity to support the weight of a firearm such as, for example, steel, aluminum, other metallic materials, composite materials, polymeric materials, wood or glass.

[0044] Figure 11 illustrates a top view of gun rest 500, another embodiment of the present invention. Gun rest 500 comprises a plate 511 having a first end section 512, a second end section 513 and an intermediate section 514. Plate 511 between second end section 513 and intermediate section 514 is bent such that an exterior angle from about 30 to about 90 degrees is formed between the second end section 513 and the extension of the first end section 512 in its plane, and an interior angle from about 90 to about 150 degrees is formed between the first end section 512 and the second end section 513. Opening 516 is formed in first end section 512. Opening 516 is configured in shape and size such that a shaft may be inserted into opening 516. Opening 516 is illustrated as being generally tear-dropped in shape with the point of the tear-drop 517 being aligned towards first end section 512 and the round end 518 of the tear-drop being aligned towards second end section 513. Additionally, opening 516 is designed such that one side of the tear-drop extends to the edge of plate 511 such that a gun rest 500 may be slipped around a shaft as well as having a shaft inserted. Teeth 519 are located around the perimeter of opening 516 such that teeth 519 will aid in gripping a shaft inserted into opening 516. Retaining device 522 is positioned in plate 511 near second end section 513. While retaining device 522 is illustrated as an opening through which a string or wire may be threaded, it is understood that retaining device 522 may be any retaining device. Flexible gripping aid 520 is located such that a portion of opening 516 is covered. Flexible gripping aid 520 will aid in gripping a shaft inserted into opening 516 as well as serving as a silencer between gun rest 500 and a shaft inserted into opening 516.

[0045] It is understood that opening 516 may be of any shape and size desired such that a shaft may inserted into opening 516. Additionally, it is understood that teeth 519 may be arranged around the perimeter of opening 516 in any configuration and size desired to improve the gripping of a shaft inserted into opening 516. Additionally, it is understood that flexible gripping aid 520 may be arranged around the perimeter of opening 516 in any

configuration and size desired to improve the gripping of a shaft inserted into opening 516. Further, flexible gripping aid 520 may be constructed of any suitable material. Preferably flexible gripping aid 520 is constructed of a plastic material. Finally, it is understood that plate 511 may be constructed of any material displaying the necessary strength and rigidity to support the weight of a firearm such as, for example, steel, aluminum, other metallic materials, composite materials, polymeric materials, wood or glass.

[0046] Although the present invention has been described with particular reference to the above embodiments, it should be understood that many variations and modifications will be obvious to those skilled in the art, and it should, therefore be understood that the scope of the invention is not limited by or to the specific disclosure herein, but includes all subject matter encompassed by the following claims and all equivalents thereof.

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Abstract

The present invention relates to gun rests which are portable, lightweight and easily adjustable. The gun rests of the present invention comprise a plate wherein an opening is formed in a first end section of the plate and the plate is bent at an intermediate
5 section such that an angle is formed between the plane formed by the first end section and the plane formed by a second end section. The opening is adapted and configured such that a shaft, such as, for example, walking/wading sticks, staffs, canes and tree limbs, can be inserted through the opening and the height of the gun rest above a surface can be quickly and easily adjusted. The gun rest is adapted and configured such that the forearm of a
10 firearm may be placed on the intermediate section of the plate thereby improving the accuracy of a sportsman firing the firearm.

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